

ABSTRACT

A process and catalyst for the partial oxidation of paraffinic hydrocarbons, such as ethane, propane, naphtha, and natural gas condensates, to olefins, such as ethylene and propylene. The process involves contacting a paraffinic hydrocarbon with oxygen in the presence of a catalyst under autothermal process conditions. The catalyst comprises a Group 8B metal and, optionally, a promoter metal, such as tin or copper, supported on a fiber monolith support, preferably a ceramic fiber mat monolith. In another aspect, the invention is a process of oxidizing a paraffinic hydrocarbon to an olefin under autothermal conditions in the presence of a catalyst comprising a Group 8B metal and, optionally, a promoter metal, the metals being loaded onto the front face of a monolith support. An on-line method of synthesizing and regenerating catalysts for autothermal oxidation processes is also disclosed. This divisional case covers the catalyst composition and the method of preparing an olefin using the catalyst.